

[TRANSLATION]

# **Assessment of Quantity Limitations Distance for Explosives**

25/06/2003

**Port of Grande-Anse**  
La Baie, Quebec

**Validity:**

- **Until 30/06/2008 or until any limiting factor changes.**
- **Provided that written procedures are in place for the handling of explosives.**
- **Provided that the recommendations outlined in this report are followed.**

[TRANSLATION]

ASSESSMENT OF QUANTITY LIMITATIONS — DISTANCE FOR EXPLOSIVES  
GRANDE-ANSE TERMINAL, QUEBEC

On 25 June 2003, a working group of the Technical Committee on Dangerous Goods surveyed the docking facilities at the Grande-Anse Terminal, Quebec. The purpose of the survey was to determine whether the existing facilities still met the requirements to handle the amount of explosives authorized by the previous survey carried out on 02 September 1993. The survey has been preceded by a meeting at which the following persons attended.

Representing the Working Group :

Capt. Pierre Giroux, Transport Canada, Marine Safety

Mr. Pierre Michaud, Natural Resources Canada, Explosives Regulatory Division

Representing the Ports Program Group :

Mr. Alain Bouchard, Officer in charge, Management and Traffic, Saguenay Port Authority

The recommendations are based on the General Principles to be employed in assessing Explosives Quantity Limitations (according to the hazard divisions established by the United Nations) in Canadian Ports, as adopted by the Technical Committee on Dangerous Goods. The Operational Standards from the principles are attached as Appendix A and are to form the basis for the procedures to be prepared by the Grande-Anse Terminal Program Group.

Description of Facility

The terminal of Grande-Anse spreads over an area of 311 hectares of land. An asphalt road 3.6 km long belonging to the Saguenay Port Authority leads to the terminal. The terminal is of a multi-purpose type oriented towards the handling of forest products, general and liquid/solid bulk cargo. The port is opened to navigation around the year and may accommodate vessels displacing up to 100 000 metric tons. It welcomes between 70 and 100 ships annually. The area has only a few buildings and has the following installations:

- Two berths to accommodate vessels of less than 150 m in length for a total berthing length of 286 m and depth at lower mean water level of 13.8 m.
- A storage and circulating area on an asphalt median of 29 769 m<sup>2</sup> used to store general cargo and solid and liquid bulk cargo.
- A shed with a surface area of 5854 m<sup>2</sup> dedicated mostly for the storage of forest product such as pulp and paper, newsprint and construction panelling.
- Adjacent to the western end of the shed, a building with a surface area of 223 m<sup>2</sup>, belonging to the Quebec Port Terminals, shelters the stevedore office and cafeteria facilities. Two parking lots are also available nearby.
- Storage tanks for the storage and distribution of liquid caustic soda and **liquid bray**. All tanks are insulated and have a total capacity of 7692 m<sup>3</sup> for the two tanks dedicated to liquid caustic soda, and a total capacity of **9327 m<sup>3</sup> for the three other tanks dedicated to liquid bray**. These tanks hold a total surface area of 7000 m<sup>2</sup>.
- **Forty metres above, an administration building of some 269 m<sup>2</sup> area overhang the terminal site.**
- A site at altitude 40 m above sea level, with 22 500 m<sup>2</sup> of effective storage area.
- A site at altitude 90 m above sea level, with 4632 m<sup>2</sup> of effective storage area.

Since the last assessment conducted in September 1993, one office building, two storage tanks and one transfer tank for liquid bray have been built and installed.

Limiting Factors Recommendations:

The Working Group considers that the modifications to port infrastructures since the last Explosives Limitation Survey do not affect the actual NEQ limits. The house/farm situated at more than 1.90 km northwest of the explosives handling area still remains the limiting factor for NEQ limit purposes.

Thus the Committee recommends that the following NEQ quantities be maintained at the docking facilities:

Division 1.1/1.5	627 tonnes (long term) 1000 tonnes (short term – max. 48 hours)
Division 1.2/1.3	1000 tonnes (total of explosives)
Division 1.4	No limit

## APPENDIX A – Version 01 January, 2005

### General Principles to be Employed in Assessing Explosive Quantity Limitations in Canadian Ports

#### Part C Operational Standards

These recommendations indicate the maximum net explosive quantity (N.E.Q.) permitted on or alongside the indicated berth at anytime. During pre-loading storage account should be given that safety distances are calculated from the face of the wharf. Where dockside storage is not in lots separated by a minimum distance of 25 m., the storage quantities should be reduced by 5 tonnes N.E.Q. for each 25 m., the explosives are stored inland from the face of the wharf.

1. Damage. In the event that any package containing explosives is found to be wetted or damaged, expert advice shall be obtained for its safe handling and disposal.
2. a) Safety. The safety precautions outlined for Class 1 of the International Maritime Dangerous Goods Code shall be strictly observed during the handling and storage of explosives, both onboard ship and at dockside. In particular stowage and handling of goods of Class 1 in section 7.1.7 and any others in the IMDG Code including restrictions for passenger vessels shall be strictly observed. All cargo handlers shall be briefed by the shipper of the possible risks and necessary precautions prior to commencing to handle explosives.  
  
b) Security. additional security procedures and precautions (Ch 1.4 IMDG Code) must be taken into consideration and implemented where considered relevant or are required when preparing for such operations or storage in dock areas.
3. Validity. Recommendations of the Technical Committee on Dangerous Goods shall remain valid for a period of 5 years. Any change in circumstances, which reduce safety distances or otherwise alter the risk to persons shall render these recommendations invalid and shall require a reassessment.
4. Maximum Quantity. Irrespective of the safety distances available at a handling site, the aggregate quantity of all explosives in divisions 1.1/1.5, 1.2 and 1.3 shall be restricted to an absolute maximum of 1000 tonnes Net Explosive Quantity (NEQ).
5. Mixed Explosives.: Where explosives of different divisions, i.e. 1.1/1.5, 1.2 and /or 1.3 are being handled together, the aggregate quantity is considered as belonging to the division with the lowest number. In this regard, division 1.5 will be considered and treated as division 1.1 when Class 1.1 explosives are part of the aggregate. Whenever bulk and/or packaged Ammonium Nitrate is stowed on

board along with explosives, one half of the weight of the AN must be considered as explosives in the NEQ calculation. In this regard, 20 tonnes NEQ of Class 1 explosives carried on a vessel along with 200 tonnes of AN, the total NEQ of Class 1 explosives on board will be considered as 120 tonnes.

6. Quantity limitations not assigned to Division 1.4. Explosives of this division are required to maintain a fire safety zone of not less than 25 m. from all goods. This minimum safety zone does not apply to explosives of compatibility group 1.4.S.
7. Short Term Limits. This increased quantity is only permitted for explosives, which are especially suited to mechanical handling, i.e. containerized, RoRo or unit loads, where handling of individual packages does not occur. Handling shall only be performed by equipment designed for the cargo containment system being used. It is restricted to a total exposure period not to exceed 72 hours and is to commence only when the marine carrier has started to work explosives. The handling of explosives, either manually or mechanically, i.e. the stuffing of containers, transferring explosives to/from land transport units, etc. is not permitted under the short term limit rule.
8. Simultaneous handling. When two ships in nearby berths are simultaneously handling or laden with explosives, they shall be berthed not less than 135 m. apart. When berthed within 1000 m. of each other the aggregate net explosive content of their combined cargoes shall not exceed the lesser of the individual berth limitations.
9. Notification. Police and Fire Fighting Authorities shall be notified of the intention to handle explosives. Such notification, given at least 24 hours prior to arrival of the explosives at the port, shall include details of the quantity and types of different explosives to be handled. Vessel traffic management systems, where they are in operation shall be notified of berths and times that explosives are to be stored or handled.
10. Communication. To provide for a rapid response in an emergency situation, a communication system shall be established between the site and the nearest fire station when fire fighters are not in attendance at the handling site.
- 11 Fertilizers: Ammonium Nitrate of Class 5.1 may not be carried with "Blasting Explosives" on board the same vessel unless the IMDG provisions for segregation (paragraph 7.2.1.16 table # 4) "separated longitudinally by an intervening complete compartment or hold from" are complied with (This includes also a minimum 24m horizontal segregation).

All blasting explosives shall be containerized when handled with fertilizers of Class 5.1. All handling of Class 1 and 5.1 shall be done separately, and not at the same time, with AN loaded first and explosives loaded last and unloaded first (LAST ON, FIRST OFF). The explosives shall be in this case,

at all times suitably containerized and in such a manner that these can be handled for LAST ON and FIRST OFF. Hatches containing AN in packaged and bulk form shall be closed before commencing the handling of any Class 1 material. Explosives and AN shall also be handled separately ashore, one at a time only, and at all times a minimum safe distance shall be maintained of at least 500m between them. Notwithstanding, a suitable distance will be provided by an NRCan explosives inspector if this minimum distance cannot be met.

Where the required segregation cannot be maintained for other reasons this may only be done following review and approval of the stowage plan by Marine Safety and provided the aggregate N.E.Q. is treated as Blasting Explosives Class 1. Any Blasting explosives Type C that is offered for transport on board vessel must be segregated and containerized on board ship from all other dangerous goods

12 Public Warning. Unless access to the explosives handling is controlled, public warnings that explosives are being handled shall be prominently displayed on all approaches to the site. Such notices should, where possible, be placed at the entrances to port property. Vessel traffic management shall advise all shipping of the locations where explosives are present and the times of handling and require all ships in the vicinity, to navigate with caution.

13. Personnel. Office staff and other workers employed within the port area shall be considered as part of the cargo operations except where publicly accessed buildings and industries not connected with port operations are located within the harbour area.

14. Fire Protection. All wharves and dock storage areas used for storage or handling of explosives shall be provided with fire hydrants or approved emergency fire pumps having hoses attached. During working hours, whenever climatic conditions permit, the hoses shall be fully charged. When climatic conditions do not permit hoses to be charged, hydrants shall be tested and found in good working order prior to the commencement of work and at 4 hourly intervals throughout the work period. Constant supervision shall be maintained to these sites during non-working periods.

15. Laytime. Laytime for a ship conveying explosives shall be kept to the bare minimum consistent with safety. Loading shall not commence until the vessel is in all respects prepared to receive loading. Explosives shall always be handled on the LAST ON, FIRST OFF basis and no other cargo shall be worked with or over explosives.

16. Mobile Units. Where explosives are to be shipped in mobile units, they shall not be allowed to accumulate but shall be dispatched as rapidly as possible.

17. Small Quantities. A total quantity not exceeding 25 kg. NEQ of any explosive may be handled at any berth, subject to due precautions being observed.

18. Single Vehicle Load. Irrespective of the quantity limitations, a single vehicle operating under an Explosive Transportation Permit and conveying not more than 20,000 kg of explosives may be driven directly aboard a Ro-Ro cargo vessel immediately prior to her sailing. This would be applicable in reverse on arrival it would need to be driven off as the first or one of the first ones soon after arrival. No intermediate handling, by which is meant the transfer of any or all of the contents of the vehicle by a crane or other hoisting device, shall take place. The maximum waiting time of the vehicle at dockside shall not exceed 30 minutes and during this time the vehicle shall be parked as far as possible from all areas used by the general public or for the handling or storage of other cargo.

### SPECIAL CIRCUMSTANCES

In the event that special circumstances are presented to the Technical Committee such as to warrant the use of additional factors, the Technical Committee may authorize other quantities and distances to be utilized for a particular movement(s).

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